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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,405	12/12/2005	Isabelle Chartier	034299-678	5533
46188	7590	11/07/2008	EXAMINER	
THELEN LLP P. O. BOX 640640 SAN JOSE, CA 95164-0640			GOFF II, JOHN L	
			ART UNIT	PAPER NUMBER
			1791	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,405	<b>Applicant(s)</b> CHARTIER ET AL.	
	<b>Examiner</b> John L. Goff	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/22/08 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 12-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
5. Claim 12 requires “in which the mask-less grid prevents glue from entering at least one of the recesses due to a predetermined difference between a first surface tension force of the

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mask-less grid and a second tension force of the upper coplanar plane areas”. It is unclear where in the specification such is disclosed. Applicants specification does not specifically describe any feature which prevents the glue from entering at least one of the recesses.

6. Claim 13 requires “wherein the upper coplanar plane includes a first surface tension force associated therewith”, “wherein the mask-less grid has a second surface tension force associated therewith”, and “wherein the glue only transfers from the grid to the upper coplanar plane due to a predetermined difference in the surface tension”. It is unclear where in the specification such is disclosed. The specification does not describe that the glue *only* transfers from the grid to the upper coplanar plane due to a predetermined difference in the surface tension, it being noted the specification also does not describe any predetermined difference in the surface tension.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 is a “Process for gluing at least one micro-structured substrate”, and claim 13 is “A method for gluing at least one micro-structured substrate”. However, the body of each claim does not further describe gluing the substrate to anything such that it is unclear what is required by the preamble.

***Claim Rejections - 35 USC § 103***

10. Claims 1-4 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roitman et al. (U.S. Patent Application Publication 2003/0017305) in view of Khan et al. (US 2004/0020595), Chen et al. (U.S. Patent 6,251,219), or Watanabe et al. (JP 2000-71422 and see also the abstract).

Roitman teaches a process for gluing at least one micro-structured substrate (250) comprising upper coplanar plane areas and recesses (260) in between them the recesses having a width of 10 microns (Figure 7B; section [0075]- first sentence in section [0077]), by means of a glue (270) that can bond to these upper coplanar plane areas. Roitman appreciates that a variety of techniques can be used to deposit the glue on the upper coplanar plane areas, including screen printing (section [0080], section [0085]), and Roitman shows the adhesive when deposited does not enter the recesses (Figure 7B). It would have been obvious to one of ordinary skill in the art at the time the invention was made that screen printing as taught by Roitman is characterized by the use of a grid to deposit adhesive in select locations where the adhesive is forced through openings in the grid by a tool that presses on the grid so as to deposit a film of glue droplets on the select locations following which the grid is removed as evidenced by Khan (Figure 5; section [0020] and [0021]), Chen (Column 1, lines 26-37), or Watanabe (Figure 1 and the abstract), it being noted the grids taught by Khan, Chen, or Watanabe do not include any additional components such as a mask such that they are considered mask-less grids.

Before depositing the adhesive, Roitman modifies the surface of the upper coplanar plane areas using plasma adhesion enhancement treatment (section [0084]). And, one having ordinary skill in the art would readily appreciate that the plasma treatment adapts the wettability of the

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surface to a material being applied thereto (it being noted that plasma treatment is also the present invention's treatment of choice – p. 13, lines 1-7).

However, it is unclear as to whether the grid necessarily contacts the upper coplanar plane areas of Roitman. The teachings of Khan, Chen, and Watanabe provide evidence that it is known in the art of screen-printing to contact the surface of a substrate, be it flat or micro-structured, with the grid when using a screen printing technique to deposit adhesive in select locations on the surface of the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to contact the upper coplanar plane areas of Roitman with the grid when depositing the glue because such is known in the art of screen printing, as shown by Khan, Chen, or Watanabe to accurately deposit the glue.

As to claim 2, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the screen printing tool in Roitman a doctor blade to press on the grid as was well known and suitable in the screen printing art as evidenced by Khan, Chen, or Watanabe.

As to claim 3, the plasma treatment taught by Roitman is considered, like that of the present invention, to control spreading of the glue.

As to claim 4, Roitman teaches closing the micro-structured substrate (250) with a closing substrate (255) that is fixed to the upper coplanar plane areas by the glue (Figure 7B; sections 0075-0076]).

As to claim 10, Roitman teaches such (sections [0075-0076]).

As to claim 12, the mask-less grids taught by Khan, Chen, and Watanabe cover the recesses thereby preventing glue from entering at least one of the recesses due in part to a

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predetermined difference between a first surface tension force of the mask-less grid, i.e. zero, and a second tension force of the upper coplanar plane areas.

As to claim 13, the upper coplanar plane areas taught by Roitman as modified by Khan, Chen, or Watanabe include a first surface tension force associated therewith, and the mask-less grid has a second surface tension force associated therewith. Thus, because Roitman as modified by Khan, Chen, or Watanabe includes a predetermined difference in surface tension force between the upper coplanar plane areas and mask-less grid the glue is considered to only transfer from the grid to the upper coplanar plane due to the predetermined difference in the surface tension forces in as much as applicants invention.

11. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roitman and Khan, Chen, or Watanabe as applied to claims 1-4 and 10-14 above, and further in view of Eisenbeiss et al. (U.S. Patent Application Publication 2005/0077175).

Roitman and Khan, Chen, or Watanabe as applied above teach all of the limitations in claims 5 and 6 except for a specific teaching of providing biological probes in recesses of the micro-structured substrate or on the closing substrate. However, placement of devices (i.e. probes) within the recesses between a micro-structured substrate and a closing substrate is well known and conventional in the art, as evidenced by Eisenbeiss (section [0032]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include with the recesses or on the closing substrate taught by Roitman as modified by Khan, Chen, or Watanabe well known devices such as probes as evidenced by Eisenbeiss depending on the intended use of the finished product.

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12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roitman and Khan, Chen, or Watanabe as applied to claims 1-4 and 10-14 above, and further in view of Soane et al. (U.S. Patent 6,176,962).

As to claim 7, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the closing substrate taught by Roitman as modified by Khan, Chen, or Watanabe with drillings through which fluid will be added into the recesses in the micro-structured substrate of Roitman because such is known in the art, as taught by Soane (Figures 5-6; column 5, lines 46-50).

13. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roitman and Khan, Chen, or Watanabe as applied to claims 1-4 and 10-14 above, and further in view of Lum et al. (U.S. Patent 5,932,315).

As to claims 8 and 9, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a plurality of bonded micro-structured and closing substrates as taught by Roitman as modified by Khan, Chen, or Watanabe by bonding one, large micro-structured substrate to one, large closing substrate and then separating the large, bonded substrates into a plurality of smaller, bonded substrates because such is known in the art, as taught by Lum (column 7, lines 36-41), where this allows for mass production of the bonded substrates and hence decreased production time.



***Response to Arguments***

14. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

It is noted claims 1 and 13 as amended require “without said film entering into said recesses” and “wherein the glue does not enter the recess” respectively. Applicants specification does not expressly describe such. However, because Figure 1C depicts the recesses without glue therein the limitations are considered to be supported by the figure.

Applicants argue, “A mask-less grid does not have defined, obstructed areas or patterns in a the liquid deposit zone which are non-permeable to liquid. This differs from conventional screen printing which utilizes a masked-grid that has areas which do not allow liquid to permeate through. Masked-grids are often referred to as stencils in which the configuration of the stencil prevents liquid to permeate through the stenciled area. In bonding substrates, it is imperative in conventional screen printing that the masked-grid is aligned with the substrate such that the liquid is applied at the proper areas. This is an advantage of a mask-less grid in that the grid does not need to be aligned (to the precision of a masked-grid) with the substrate. Another advantage is that the same mask-less grid may be used with substrates having different upper coplanar plane configurations.”.

The claims are not commensurate in scope with this argument. The claims only require a mask-less grid. Applicants specification does not describe any of the above regarding a mask-less grid. Applicants specification does not specifically define mask-less grid, and applicants have not provided any other evidence regarding what one of ordinary skill in the art understands as a mask-less grid. The examiner considered a mask-less grid a grid, i.e. a material provided

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with holes, without an additional mask applied thereto. This interpretation is consistent with applicants specification as applicants grid is nothing more than a material provided with holes. Further, Sasaki et al. ("Screen Printed Adhesive Technologies for All-Silicon Optical Packaging" as provided by applicants) is exemplary of a masked grid as a grid, i.e. a material provided with holes, with an additional mask applied thereto. The grids taught by Khan, Chen, and Watanabe are mask-less grids.

As to applicants arguments regarding motivation to combine Roitman and Khan, Chen, or Watanabe, it is noted Roitman specifically describe screen printing a glue onto upper coplanar plane areas of a microstructured surface wherein Khan, Chen, or Watanabe merely demonstrate what is well understood that in screen printing a grid is used wherein the grid is simply a material provided with holes without any additional mask applied thereto. Finally it is noted applicants claims and the phrase mask-less grid do not preclude the grid itself from acting as a mask as in the same manner applicants mask-less grid necessarily acts as a mask in the portions of the grid surrounding the holes.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571)272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John L. Goff/  
Primary Examiner, Art Unit 1791